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without seminal agency, and that the same variety in this way has appeared in widely-separated districts.

4th. As the discoveries of Darwin have shown in many cases, varieties to be the parents of species, species may originate in widely-separated localities by bud variation.

A Sketch of the Classification of the American ANSERINÆ.

BY B. H. BANNISTER.

The following remarks are based upon an examination of the specimens of American geese in the collection of the Smithsonian Institution.

The subfamily Anserinæ by many recent authors is made to include the genera *Dendrocygna* and *Chenalopex*, and doubtless correctly. In the present paper, however, we shall not consider these genera, leaving them provisionally out of the subfamily; if included, they would form at least one well marked section, following those we are about to describe.

The distinguishing characters of the Anserinæ, as thus limited to the true geese, are, the lengthened tarsus, covered with hexagonal or subquadrate scales; the neck more elongated than in the ducks and less so than in the swans; the short, high bill gradually narrowing toward the tip, which is altogether composed of the large recurved nail; together with the more or less terrestrial habit of life, and the usually similar plumage of the two sexes.

The geese of the North American continent have been long known, and being for the most part closely allied to, and in many cases identical with, well known European forms, they fall readily into the systematic subdivisions based upon the latter. In the temperate regions of South America, however, the Anserinæ are of a rather aberrant type, and have been less completely studied. They differ chiefly from the North American and European species in possessing metallic tints on the plumage, and in having in two of the genera the coloration of the two sexes widely different. These differences appear to be exclusively regional, none of the aberrant forms being found in North America, and *vice versa*.

Another basis of division of the American Anserinæ is found in the presence, in two species—one North American and the other a Southern form—of deep rough superorbital depressions and reversed relative proportions of the tarsus and middle toe, together with an exclusively sea-coast habitat, and a carnivorous diet, corresponding in some of these respects to the Oidemiæ and Somateriæ amongst the ducks.

These latter characters we have taken as the basis of the two sections into which we divide the subfamily, as at present considered, since they correspond with equivalent characters in one of the subdivisions of the Fuligulinæ. The presence of the deep superorbital depressions is a very general character amongst the carnivorous natatores, though not universal.

The following is offered as an outline of the divisions and genera of the subfamily, noting briefly the principal generic characters, the American species and their geographical distribution. The principal characters of the subfamily have been already given at sufficient length.

Subfamily *ANSERINÆ*.

Section A. *Ansereæ*. Habits terrestrial; tarsi longer than middle toe with claw, skull without superorbital depressions.

a. *Typical*. Plumage without metallic reflections, color of sexes invariably similar.

1. ANSER, Vieill.

Gen. Char. Bill as short as head or shorter, gaping at the sides, the lamellæ appearing prominently below the edge of the upper mandible. Bill and feet light colored; colors of plumage generally sober, the shades of brown and gray predominating.

Species *Anser hyperboreus*, Pall. N. America and West Indies.
" *rossii*, Baird. Central regions H. B. Terr.; Cala.
" *cœrulescens*, L. Central U. S.; Hudson's Bay.
" *ferus*. ? Pr. William's Land.
" *segetum*, Gm. ? Hudson's Bay.
" *gambelli*, Hartl. N. America.

2. BRANTA SCOPOLI.[*]

Gen. Char. Bill short, lamellæ not projecting below upper mandible. Bill and feet black; neck always black.

Species *Branta canadensis*, L. N. America.
" *hutchinsii*, Rich. & Sw. N. America.
" *bernicla*, L. Eestern and central N. America.
" *nigricans*, Lawr. West coast of N. America.
" *leucopsis*, Bechst. N. E. of N. America. Rare.

b. *Aberrant.* Plumage with metallic reflections on speculum; colors of sexes not invariably similar. Membrane of toes somewhat scolloped out in front.

3. ORESSOCHEN, n. g.

Gen. Char. Bill very robust, light colored, lamellæ not projecting. Feet robust, light colored, hallux well developed. Plumage of sexes similar; colors simple.

Species *Oressochen melanopterus*, Gay. Highland regions of Chili.

4. CHLŒTROPHUS, n. g.

Gen. Char. Bill moderate, black. Feet particolored, black and orange. Colors of sexes similar. Plumage rather brilliant for this subfamily.

Species *Chlœtrophus poliocephalus*, Gray. Coasts of Patagonia and adjacent islands.
rubidiceps, Sclater. Falkland Islands.

5. CHLŒPHAGA, Eyton.

Gen. Char. Bill as in the last genus. Feet varying in color with the sex—black in the male, yellow in the female. Plumage of the two sexes quite different, and generally less bright colored than in *Chlœtrophus*.

Species *Chlœphaga magellanica*, Gm. Chili and Patagonia.
" *picta*, Gm. " "

Section B. *Philacteæ.* Skull with well marked rough superorbital depressions. Tarsus as short as or shorter than the middle toe with its claw. Habits littoral.

6. PHILACTE, n. g.

Bill short, moderately robust, light colored, nail of both upper and lower mandibles quite prominent, lamellæ appearing as pointed processes in the posterior part of the commissure. Feet moderate, light colored. General tint of plumage light, no metallic reflections.

Species *Philacte canagica*, Lewast. N. W. coast of N. America; ? Caspian.

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[*] The genus *Brante* was adopted from Klein by Scopoli in 1769, the first species being *Anas bernicla*, L. This, according to usage, will have to be substituted for *Bernicla* of Boie (Isis, 1822), and also antedates his genus *Branta*, established at the same time, the type of which is *Anas rufina*, Pall.

7. TÆNIDIESTES, Reich.

Gen. Char. Bill robust, varying in color with the sex, as also does the plumage; lower mandible deep, nail prominent, lamellæ not projecting. Feet robust, varying in color with the sex, tarsus shorter than middle toe with claw. Colors of female with metallic reflections on the speculum.

Species *Tænidiestes antarctica*, Gm. Southern extremity of S. America, and adjacent islands; Chili.

December 6th.

The President, Dr. Ruschenberger, in the Chair.

Thirty-three members present.

Prof. Cope made some observations on a number of species of reptiles from the Cretaceous beds of Kansas, which he had recently studied. He stated that the specimens included parts of *Elasmosaurus platyurus* Cope, *Polycotylus latipinnis* Cope, *Liodon proriger* Cope, and two new Liodons, which he named *L. icterius* and *L. mudgei* respectively. They both belonged to the division with depressed vertebral centra, and the *L. icterius* was near *L. validus* Cope, of New Jersey, but exhibited a less anterior, and less prominent proximal external angle of the quadratum, which Prof. Cope stated indicated a less extensive lateral flexibility of the ramus of the mandible.

In *L. Mudgei* the angle was still more posterior, and the pterygoid teeth were not pleurodont, as in *Platecarpus tympaniticus*. Remains of the cranium indicated a reptile of 30 feet in length, while those of the *L. icterius* belonged to two individuals of 40 and 50 feet in length. A third new Mosasauroid of the size of the *L. Mudgei* was described under the name of *Clidastes cineriorum*. It was stated to be much the largest species of the genus, and to differ from the three now known in having the plane of the articular extremities at right angles to the long axis of the centra, and not oblique to it. From near Sheridan, Kansas; described by Prof. B. F. Mudge. He described a third new Liodon, of gigantic size, stating it to exceed by very much the Mæstricht reptile, and even the *Mosasaurus brumbzi* Gibbes, which was till now the largest known species. He pointed out the characters of the vertebræ, which were very much depressed as to the centrum, which measured 5¾ inches in diameter. It was allied to the *M. brumbzi*, but differed in having a strong emargination of the articular faces to accommodate the neural canal. He named it *Liodon dyspelor*.

Prof. Cope also exhibited the humeri and femora of *Polycotylus*, which were like those of *Plesiosaurus*, and measured 18 inches in length.

Mr. Thomas Meehan exhibited several specimens of the *Maclura aurantiaca*, the common osage orange, in which the plants were inarched together in pairs in a remarkable way. He said the osage orange was extensively grown as a hedge plant, and in digging up the one year plants, these united twins were usually found in the proportion of about one score in ten thousand. Double kernels were common occurrences in many seeds. There were double peaches, almonds, and double yolks in eggs. But these all had their separate seed coverings or membranes, and the yolks their own albuminous envelopes, consequently the separate embryos produced distinct plants. But these indicated that there had been two separate embryos under one seminal covering, and that the radicular portions of this double embryo, having no membrane to separate them, had inarched themselves together while passing to the ground. If this was the true explanation, he thought there was no such case recorded. That it was true seemed probable, from the fact that all the specimens were united in exactly the same manner, showing that time, place, and the circumstances of the union were uniformly the same. The scars showed